This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (previously presented): A method of processing a frequency division multiplexed signal representing a plurality of symbols and including a plurality of tones, a first subset of said plurality of tones being allocated to a first user, the method comprising the steps of:

performing a time domain to frequency domain transform operation on the frequency division multiplexed signal to generate a frequency domain signal there from;

filtering the frequency domain signal to remove tones in said plurality of tones which are not included in said first subset of tones;

performing a frequency domain to time domain transform operation on the filtered frequency domain signal to generate a filtered time domain signal;

performing, after performing said frequency domain to time domain transform operation a channel equalization operation on the filtered time domain signal; and

recovering symbols transmitted to the first user from the filtered time domain signal following equalization.

Claim 2 (previously presented): The method of claim 1, wherein said frequency division multiplexed signal is an OFDM signal.

Claim 3 (previously presented): The method of claim 1, wherein recovering symbols further includes performing a channel estimation operation, said channel estimation operation including:

identifying a training symbol in the filtered time domain signal; and

generating at least one channel estimation as a function of the difference between the identified training symbol and a known training symbol value.

Claim 4 (previously presented): The method of claim 1,

wherein the frequency division multiplexed signal corresponds to multiple symbol periods, the portion of the received signal corresponding to each symbol period including at least one training symbol; and

wherein recovering symbols further includes performing a channel estimation operation, said channel estimation operation including, for each symbol period:

identifying a training symbol in the filtered time domain signal; and

generating at least one channel estimation as a function of the difference between the identified training symbol and a known training symbol value.

Claim 5 (previously presented): The method of claim 1, wherein the frequency division multiplexed signal corresponds to multiple dwells, each dwell being a period of time equal to multiple symbol periods, the first user being allocated the first subset of said plurality of

tones for use throughout one of said dwells, the method further comprising:

performing a channel estimation operation including, for each dwell:

identifying a training symbol in the filtered time domain signal received during one symbol period within the dwell; and

generating a channel estimation as a function of the difference between the identified training symbol and a known training symbol value.

Claim 6 (original): The method of claim 5,

wherein performing a channel equalization operation includes:

using a channel estimation generated from a training symbol received during a dwell to perform a channel equalization operation on a portion of the filtered time domain signal corresponding to a symbol period in said dwell which does not include said identified training symbol.

Claim 7 (original): The method of claim 5,

wherein all of a plurality of symbols received during one of said symbol periods in each dwell include training symbols;

wherein performing a channel estimation operation for each dwell further includes:

generating a channel estimation for each of the training symbols received during said one of said symbol periods.

Claim 8 (original): The method of claim 7, wherein performing a channel equalization operation includes:

using the channel estimations generated from each of the received training symbols during said one of said symbol periods in each dwell, to perform separate channel equalization operations on each portion of the filtered time domain signal corresponding to a symbol in at least one other symbol period included in the same dwell in which the training symbols used to generate the channel estimations were received.

Claim 9 (original): The method of claim 8, the symbol period in which all received symbols are training symbols is located at the center of each dwell.

Claim 10 (previously presented): The method of claim 1,

wherein the frequency division multiplexed signal is an orthogonal frequency division multiplexed signal; and

wherein recovering symbols transmitted to the first user includes:

mapping values of the filtered time domain signal at instants in time used to transmit symbol values to values in a set of symbol values.

Claim 11 (original): The method of claim 10, wherein recovering symbols transmitted to the first user further includes:

performing a symbol value to symbol value mapping operation to map symbol values generated by mapping values of the filtered time domain signal to values in another set of symbol values.

Claim 12 (original): The method of claim 10,

wherein performing a time domain to frequency domain transform operation includes performing one of a Fast Fourier Transform operation and a Discrete Fourier Transform operation; and

wherein performing a frequency domain to time domain transform operation includes performing one of an Inverse Fast Fourier Transform operation and an Inverse Discrete Cosine Transform operation.

Claim 13 (original): The method of claim 12, further comprising:

receiving the frequency division multiplexed signal from a communications channel including frequency division multiplexed signals corresponding to users other than the first user.

Claim 14 (previously presented): An apparatus for processing a frequency division multiplexed signal representing a plurality of symbols and including a plurality tones, a first subset of said plurality of

tones being allocated to a first user, the apparatus comprising:

a time to frequency domain transform module for generating a frequency domain signal from the frequency division multiplexed signal;

a tone filter for filtering from the frequency domain signal generated by the time domain to frequency domain transform module tones other than those included in the first subset to thereby generate a filtered frequency domain signal;

a frequency to time domain transform module for performing a frequency domain to time domain transform operation on the filtered frequency domain signal to thereby generate a time domain signal;

a channel equalizer located after said frequency domain to time domain transform module, for performing a channel equalization operation on the time domain signal produced by the frequency to time domain transform module; and

a time instant to symbol mapping module coupled to the channel equalizer for mapping signal values at points in time to symbol values.

Claim 15 (previously presented): The apparatus of claim 14, wherein the frequency division multiplexed signal is an OFDM signal.

Claim 16 (previously presented): The apparatus of claim 14, further comprising:

a channel estimation circuit coupled to said frequency to time domain transform module and to the channel equalization module for generating at least one channel estimate from the time domain signal and for supplying the channel estimate to the channel equalization module.

Claim 17 (original): The apparatus of claim 16, further comprising;

a symbol to symbol mapping module coupled to the time instant to symbol mapping module.

Claim 18 (original): The apparatus of claim 16, further comprising:

a cyclic prefix discarding circuit coupled to the time to frequency domain transform module for discarding portions of the frequency division multiplexed signal corresponding to cyclic prefixes.

Claim 19 (original): The apparatus of claim 14,

wherein the frequency division multiplexed signal is an orthogonal frequency division multiplexed signal;

wherein the time to frequency domain transform module is a Fast Fourier Transform circuit; and

wherein the frequency to time domain transform module is an inverse Fast Fourier Transform circuit.

Claim 20 (previously presented): A method of processing a received orthogonal frequency division multiplexed signal

to generate symbol values, the method comprising:

performing a frequency domain to time domain transform operation to generate an OFDM time domain signal;

performing, after performing said frequency domain to time domain transform operation, a channel equalization operation on the OFDM time domain signal in the time domain;

and

mapping values of the OFDM time domain signal after channel equalization at instants in time used to transmit symbol values to symbol values.

Claim 21 (previously presented): The method of claim 20, further comprising:

filtering the OFDM signal in the frequency domain to remove undesired signal tones prior to performing said channel equalization operation on the received OFDM time domain signal in the time domain.

Claim 22 (previously presented): An orthogonal frequency division multiplexed (OFDM) signal receiver for receiving an OFDM signal, the receiver comprising:

a frequency domain to time domain transform module for performing a frequency domain to time domain transform operation to generate an OFDM time domain signal;

a time domain channel equalization module, located after said frequency domain to time domain transform module, for performing a channel equalization

operation on the OFDM time domain signal generated by said frequency to time domain transform operation; and

a time instant to symbol mapping module for mapping values of the time domain signal after channel equalization at instants in time used to transmit symbol values to symbol values.

Claim 23 (previously presented): The receiver of claim 22, further comprising:

a time to frequency domain signal transform circuit for converting the received OFDM signal to the frequency domain; and

a tone filter coupled to the time to frequency domain signal transform circuit for performing a filtering operation on the received OFDM signal in the frequency domain.

Claim 24 (previously presented): A communications system comprising:

an orthogonal frequency division multiplexed signal transmitter including:

a symbol to time instant mapping module for mapping a plurality of symbols to be transmitted to uniformly spaced points in time within a time period corresponding to a symbol duration; and

an orthogonal frequency division multiplexed signal receiver including:

a frequency domain to time domain transform module for performing a frequency

domain to time domain transform operation on a received OFDM signal to thereby generate a time domain signal;

a time domain channel equalization module, located after said frequency domain to time domain transform module, for performing a channel equalization operation on the time domain signal;

a time instant to symbol mapping module for mapping signal values at points in time used to transmit symbols to symbol values.

Claim 25 (previously presented): The system of claim 24, wherein the receiver further includes:

a time domain to frequency domain transform circuit for converting a received signal from the time domain to the frequency domain; and

a tone filter coupled to the time domain to frequency domain transform circuit for filtering tones, outside a set of tones used by the receiver, from the received signal in the frequency domain, an output of the tone filter supplying the input to the frequency domain to time domain transform circuit.

Claim 26 (previously presented): The system of claim 24, wherein the received OFDM signal includes a plurality of uniformly spaced OFDM tones.

Claim 27 (previously presented): The method of claim 1, wherein said step of recovering symbols transmitted to

the first user from the filtered time domain signal is performed by performing a time domain signal to symbol value mapping operation in the time domain.

Claim 28 (previously presented): The method of claim 27, wherein performing the time domain signal to symbol value mapping operation in the time domain includes generating multiple symbol values for a portion of the filtered time domain signal corresponding to a symbol transmission time period, each symbol value being generated from a different part of the filtered time domain signal.

Claim 29 (previously presented): The method of claim 28, wherein the value of the filtered time domain signal at a single instant in time is used to generate one symbol value.

Claim 30 (previously presented): The method of claim 1, wherein recovering symbols from the filtered time domain signal includes recovering a plurality of symbol values from a portion of said filtered time domain signal corresponding to a single OFDM symbol transmission time period, each symbol value corresponding to a different point in time within the single OFDM symbol transmission time period.

Claim 31 (previously presented): The method of claim 30, where the different points in time within the symbol transmission time period from which individual symbol

values are generated are uniformly spaced in time within the single OFDM symbol transmission time period

Claim 32 (previously presented): The apparatus of claim 14, wherein said time instant to symbol mapping module is a time domain signal processing module which maps each one of multiple individual time instants within an OFDM symbol time period to corresponding individual symbol values according to a one to one relationship between time instants and symbol values.

Claim 33 (previously presented): The method of claim 20, wherein said mapping of values of the OFDM time domain signal after channel equalization involves performing said mapping of values in the time domain, said mapping including mapping of a plurality of individual instants in time within an OFDM symbol period to generate a corresponding plurality of symbol values, each of the plurality of symbol values corresponding to a single time instant.

Claim 34 (previously presented): The receiver of claim 22, wherein said time instant to symbol mapping module performs said mapping in the time domain, said mapping including mapping of a plurality of individual instants in time within an OFDM symbol period to generate a corresponding plurality of symbol values, each of the plurality of symbol values corresponding to a different point in time.

Claim 35 (previously presented): The system of claim 24, wherein said time instant to symbol mapping module maps different points in time within a single OFDM symbol transmission time period to determine individual symbol values corresponding to individual ones of said different points in time.

Claim 36 (previously presented): The method of claim 1, wherein said plurality of tones includes another subset of tones allocated to a another user, said another user being different from said first user, said filtering of the frequency domain signal removing tones in said another subset of tones.

Claim 37 (previously presented): The method of claim 36, wherein said frequency division multiplexed signal is an OFDM signal, said first set of tones and said second set of tones corresponding to said OFDM signal.

38. (new) A computer readable medium embodying machine executable instructions for controlling a communications device to implement a method of processing a frequency division multiplexed signal representing a plurality of symbols and including a plurality of tones, a first subset of said plurality of tones being allocated to a first user, the method comprising the steps of:

performing a time domain to frequency domain transform operation on the frequency division multiplexed signal to generate a frequency domain signal there from;

filtering the frequency domain signal to remove tones in said plurality of tones which are not included in said first subset of tones;

performing a frequency domain to time domain transform operation on the filtered frequency domain signal to generate a filtered time domain signal;

performing, after performing said frequency domain to time domain transform operation a channel equalization operation on the filtered time domain signal; and

recovering symbols transmitted to the first user from the filtered time domain signal following equalization.

39. (new) An apparatus comprising:

a processor for processing a frequency division multiplexed signal representing a plurality of symbols and including a plurality of tones, a first subset of said plurality of tones being allocated to a first user, the processor being configured to:

perform a time domain to frequency domain transform operation on the frequency division multiplexed signal to generate a frequency domain signal there from;

filter the frequency domain signal to remove tones in said plurality of tones which are not included in said first subset of tones;

perform a frequency domain to time domain transform operation on the filtered frequency domain signal to generate a filtered time domain signal;

perform, after performing said frequency domain to time domain transform operation a channel equalization operation on the filtered time domain signal; and

recover symbols transmitted to the first user from the filtered time domain signal following equalization

Claim 40 (new): An apparatus for processing a frequency division multiplexed signal representing a plurality of symbols and including a plurality tones, a first subset of said plurality of tones being allocated to a first user, the apparatus comprising:

a time to frequency domain transform means for generating a frequency domain signal from the frequency division multiplexed signal;

tone filter means for filtering from the frequency domain signal generated by the time domain to frequency domain transform means tones other than those included in the first subset to thereby generate a filtered frequency domain signal;

a frequency to time domain transform means for performing a frequency domain to time domain transform operation on the filtered frequency domain signal to thereby generate a time domain signal;

channel equalizer means, located after said frequency domain to time domain transform module, for performing a channel equalization operation on the time domain signal produced by the frequency to time domain transform means; and

time instant to symbol mapping means coupled to the channel equalizer for mapping signal values at points in time to symbol values.

Claim 41 (new): The apparatus of claim 40, wherein the frequency division multiplexed signal is an OFDM signal.

Claim 42 (new): The apparatus of claim 40, further comprising:

channel estimation means coupled to said frequency to time domain transform module and to the channel equalization means for generating at least one channel estimate from the time domain signal and for supplying the channel estimate to the channel equalization means.

Claim 43 (new): The apparatus of claim 42, further comprising;

symbol to symbol mapping means coupled to the time instant to symbol mapping means.

Claim 44 (new): An orthogonal frequency division multiplexed (OFDM) signal receiver for receiving an OFDM signal, the receiver comprising:

a frequency domain to time domain transform means for performing a frequency domain to time domain transform operation to generate an OFDM time domain signal;

a time domain channel equalization means, located after said frequency domain to time domain transform means, for performing a channel equalization operation on the OFDM time domain signal generated by said frequency to time domain transform means; and

a time instant to symbol mapping means for mapping values of the time domain signal after channel equalization at instants in time used to transmit symbol values to symbol values.

Claim 45 (new): The receiver of claim 44, further comprising:

time to frequency domain signal transform means for converting the received OFDM signal to the frequency domain; and

tone filter means coupled to the time to frequency domain signal transform means for performing a filtering operation on the received OFDM signal in the frequency domain.

Claim 46 (new): A communications system comprising:

an orthogonal frequency division multiplexed signal transmitter means for generating and transmitting an orthogonal frequency division multiplexed signal including:

a symbol to time instant mapping means for mapping a plurality of symbols to be transmitted to uniformly spaced points in time within a time period corresponding to a symbol duration; and

an orthogonal frequency division multiplexed signal receiver means for receiving and processing said orthogonal frequency division multiplexed signal including:

frequency domain to time domain transform means for performing a frequency domain to time domain transform operation on said received orthogonal frequency division multiplexed signal to thereby generate a time domain signal;

time domain channel equalization means, located after said frequency domain to time domain transform means, for performing a channel equalization operation on the time domain signal;

time instant to symbol mapping means for mapping signal values at points in time used to transmit symbols to symbol values.

Claim 47 (new): The system of claim 46, wherein the receiver further includes:

time domain to frequency domain transform means for converting a received signal from the time domain to the frequency domain; and

tone filter means coupled to the time domain to frequency domain transform means for filtering tones, outside a set of tones used by the receiver, from the received signal in the frequency domain, an output of the tone filter means supplying the input to the frequency domain to time domain transform means.

Claim 48 (new): The system of claim 46, wherein the received OFDM signal includes a plurality of uniformly spaced OFDM tones.